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Counsel

April 8, 2004

Mary L. Cottrell, Secretary
Department of Telecommunications and Energy
One South Station
Boston, MA 02110


D.T.E. 03-121

Dear Secretary Cottrell:

I am enclosing the responses of Massachusetts Electric Company to the NE DG Coalition's First Set of Information Requests.

Thank you very much for your time and attention to this matter.

Very truly yours,


Amy G. Rabinowitz

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NStar Electric
Docket No. DTE 03-121

Responses to NE DG Coalition's First Set of Information Requests
to Massachusetts Electric Company and Nantucket Electric Company

Information Request NEDGC-MECO 1-1

Request:

Referring to the Direct Testimony of Carlos A. Gavilondo ('Gavilondo Testimony') at page 6, lines 12-14, please state whether there is diversity between customers with on-site generation and customers without on-site generation at the local distribution level.

Response:

To the extent diversity exists at the local distribution level, the installation by one or more customers of on-site generation at that level may or may not affect local diversity. The concept of diversity is that individual customers will not necessarily reach their individual facility peaks at the same time. That is, the sum of the non-coincident peak demands of individual customers will not be the same as the simultaneous peak demands of those customers. The greater the ratio of non-coincident demand to simultaneous (coincident) demand, the greater the diversity factor. Although the installation of on-site generation may affect the customer's overall load profile, because the on-site generator may not necessarily be operating at the time of the coincident peak, its existence might not increase local diversity. In addition, because many generation protection systems are designed to isolate and trip the generation equipment in the event of a fault or similar electrical disturbance on the utility system, the existence of multiple synchronous generators in a local distribution area does not necessarily add to diversity. This is because all of the on-site generation may trip off-line simultaneously in response to a single event. Although it is likely that the operation of customer-owned on-site generation would affect that individual customer's load profile, it is uncertain whether the generation would be operating at the time of the coincident peak on local distribution facilities, and thus it is uncertain whether such generation would affect local diversity.

Prepared by or under the supervision of: Carlos A. Gavilondo and Timothy R. Roughan

Information Request NEDGC-MECO 1-2

Request:

Referring to the Gavilondo Testimony at page 6, line 21 to page 7, line 5:

- (a) Please state whether: (1) distribution substations are designed to serve all the individual non-coincident peak load connected to the substation; (2) distribution feeders are designed to serve all the individual non-coincident peak load connected to the feeder; and (3) distribution transformers are designed to serve all the individual non-coincident peak load connected to the transformer.
- (b) Please state whether: (1) distribution substations are designed assuming that all interconnected generation will be out of service at the same time; (2) distribution feeders are designed assuming that all interconnected generation will be out of service at the same time; and (3) distribution transformers are designed assuming that all interconnected generation will be out of service at the same time.
- (c) Are substations, feeders and transformers designed assuming that greater diversity exists at these levels?

Response:

- (a) Because electrical equipment is sized in standard increments, the amount of load a distribution substation is designed to serve will reflect these standard equipment increments. In determining the design load for a substation, system planners consider such things as the anticipated loads during normal and emergency conditions (including the potential to re-route loads through system switching), and the cost and availability of standard equipment necessary to serve that load. With the exception of individual transformers, substations, feeders and transformers are all sized to serve the coincident peak load connected to them. The loading on feeders and substations is metered, and these meter readings are the basis for future planning. Because feeders generally serve only a portion of the total load served from a substation, there are fewer customers served from a feeder than from a substation. To the extent the majority of anticipated loading on a feeder is due to a small number of large customers with similar load patterns, planners may have less ability to rely on load diversity in sizing the feeder. Because even fewer customers are served from distribution transformers, there is even less opportunity to rely on load diversity when sizing the equipment. That is, distribution transformers are more dedicated to serving individual customers than feeders or substations.
- (b) Distribution substations, feeders, and transformers are designed on the basis of having to serve the coincident interconnected loads. For planning purposes, the Company assumes that any significant on-site generation located on a feeder is out of service at the time of the system peak.

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Information Request NEDGC-MECO 1-2 (continued)

- (c) Please see response to subpart (a), above.

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Responses to NE DG Coalition's First Set of Information Requests
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Information Request NEDGC-MECO 1-3

Request:

Referring to the Gavilondo Testimony at page 12, lines 12-13, please describe "other ways which non-firm or reduced back-up service could be provided?"

Response:

Mass. Electric has not developed any specific proposal for how non-firm or reduced back-up service could be provided. However, other ways that non-firm or reduced back-up service could be provided might include the use of equipment (such as a recloser) that would limit a customer's ability to draw more than a predetermined amount of load from the distribution system. Utilities in other regions also have developed reduced or non-firm back-up service alternatives. *See, e.g.,:*

Baltimore Gas & Electric Co., Standby Services, Schedule S, Option 2B—Standby for Interruptible Delivery Service (<http://www.bge.com/CDA/Files/rSCHS.doc>):

At the Customer's expense, load monitoring and control equipment will be owned, installed, operated and maintained by the Company. This load limiting equipment will be designed to ensure that the maximum load to be delivered over the Company's distribution facilities to the Customer cannot exceed the Delivery Service Requirement. In the event that the Customer's actual requirements exceed the Delivery Service Requirement, the load limiting equipment will operate in such a manner as to completely sever all service to the Customer's facility. Service will be restored after the Customer's load falls below the Delivery Service Requirement and the load limiting equipment is reset.

Other alternatives may include rates that impose financial penalties for customers that take service at levels or during periods not supported by the reduced back-up service tariff.

Prepared by or under the supervision of: Carlos A. Gavilondo